PMM/KS/15–7008

Fourth Semester B. E. (Computer Technology) (C. B. S.) Examination

ADVANCED MICROPROCESSOR AND INTERFACING

Time : Three Hours] [Max. Marks : 80

N. B. : (1) All questions carry marks as indicated.
(2) Solve six questions as follows :—
Que. No. – 1 OR Que. No. – 2
Que. No. – 3 OR Que. No. – 4
Que. No. – 5 OR Que. No. – 6
Que. No. – 7 OR Que. No. – 8
Que. No. – 9 OR Que. No. – 10
Que. No. – 11 OR Que. No. – 12
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data wherever necessary.

1. (a) Draw and explain internal architecture of 8086. Also explain the importance of instruction queue. 7

(b) Write an ALP of 8086 to scan a string for a byte 08H. String of 20 bytes is stored in memory starting at 1000 : 0100. Store the offset of byte in register DX if present. 7

OR

2. (a) Interface 8 KB of ROM and 8 KB of RAM to 8086 (minimum mode). Assume suitable starting addresses. 7

(b) Explain concept of odd bank and even bank in 8086. 7

3. (a) Interface 8 bit DAC to 8086 microprocessor and write a program to generate a triangular waveform at the output of DAC. 7

(b) Draw and explain the interfacing of 4 X 4 matrix keyboard with 8086. 6

OR

4. (a) Interface 7 – segment display with 8086 in common cathode configuration and write a program to display '8' on 7 segment display. 7

(b) Interface 8253 with 8086 and write a program to generate a square of frequency 1 KHz at 8253 output. Assume suitable frequency for 8253. 6

5. (a) Explain the internal block diagram of 8259 PIC. 7

(b) Draw and explain block diagram of 8237 DMA controller. 7

OR

6. (a) Draw internal block diagram of 8255 PPI. Explain the I/O Modes of 8255. 7

(b) Explain the 6845 CRT controller with diagram. 7

7. (a) Explain the role of bus controller in system bus design with 8086 maximum mode. 7

(b) Explain various data types supported by 8087 NDP. 6

OR

8. (a) Explain different keyboard modes of 8279. 7

   (b) Explain the operation of bus arbiter in 8086 based system using 8289 bus arbiter. 6

9. (a) Explain the memory organization of 8051 microcontroller. 7

   (b) Explain following SFR's :—

   (i) PCON (ii) IP (iii) TMOD. 6

OR

10. (a) Draw and explain internal architecture of 8051 microcontroller. 8

    (b) Write a program to generate a square wave of 10 KHz on the LSB of port 1 i.e. P1.0, using a timer. 5

11. (a) Give functional description of Pentium architecture. 7

    (b) What is Task State Segment (TSS) ? How it is addressed. 6

OR

12. (a) Explain memory management unit of Pentium. 7

    (b) Write short note on Pentium Registers. 6